REMARKS

The Examiner's Action mailed on May 5, 2006, has been received and its contents carefully considered.

In this Response, claims 1-12 remain pending in the application. For at least the following reasons, it is submitted that this application is in condition for allowance.

The Examiner has rejected claims 1-4, 6, 7 and 10 as being anticipated by *Burgin et al* (USP 5,947,027) in view of *Chou* (USP 6,482,742). It is submitted that these claims are patentably distinguishable over the cited reference for at least the following reasons.

Applicants' claim 1 is directed to a parallelism adjustment device applicable to nano-imprint lithography. The parallelism adjustment mechanism comprises a hermetically enclosed resilient film and a predetermined amount of fluid filled therein.

As acknowledged by the Examiner's Action, *Burgin et al.* fail to disclose an inflating membrane that is a hermetically enclosed resilient film containing a predetermined amount of fluid, as recited by claim 1. To overcome this admitted deficiency, the Action relies on the teachings of *Chou.*

Initially, it is noted that the Action addresses the rejection as if claim 1 recited a hermetically enclosed chamber containing a predetermined amount of fluid. However, claim 1 instead recites a hermetically enclosed resilient film

containing a predetermined amount of fluid. As will be pointed out, the cited reference does not disclose or suggest this claimed feature.

Chou discloses a sealed mold/layer assembly (30) disposed within a pressure vessel (31). The mold/layer assembly (30) comprises a mold (10) with protruding features and a substrate (20) bearing a moldable thin layer (21) (Fig. 1 and col. 3, lines 3-5). The assembly (30) is sealed by a peripheral elastomeric gasket (32), extending around the area to be molded (col. 4, lines 2-4). An alternative sealing arrangement is accomplished by using a sealing o-ring (64) between the mold (10) and the substrate (20) to hermetically isolate a region between the layer (21) and the mold (10) from pressurized fluid in the pressure chamber (31, col. 5, lines 37-41, Fig. 6D, claim 27). In this case, the hermetically isolated region is enclosed by the mold (10), the layer (21), and the o-ring (64). However, and in contrast to the claimed invention, neither the hermetically isolated region nor the o-ring (64) is a hermetically enclosed resilient film with a predetermined amount of fluid filled therein, i.e. the region is not a film and the ring is not capable of being filled up with a predetermined amount of fluid.

Therefore, the structure of the resilient film (24) of the claimed printing apparatus (10) of the present invention is totally different from the structure of the o-ring (64) or of the hermetically isolated region disclosed by *Chou*. Since *Burgin et al.* and *Chou* fail to disclose, teach, or suggest the hermetically enclosed resilient film with a predetermined amount of fluid filled therein, the Examiner's

combination cannot render the printing apparatus of the present invention obvious.

Further, claims 2 and 3 are submitted to be further patentably distinguishable over the cited references for at least the following additional reasons. These claims recite that when the parallelism adjustment mechanism is coupled to the first molding plate, it will be mounted between the first molding plate and the imprint mold (claim 2), or when the parallelism adjustment mechanism is coupled to the second molding plate, it will be mounted between the second molding plate and the substrate (claim 3). To the contrary, since *Chou's* hermetically isolated region must be enclosed by the mold body (11), the substrate (20), and the sealing device (32 or 65) to provide parallelism adjustment, neither the hermetically isolated region nor the sealing device can be mounted between the mold body (11) and the molding layer (12), or between the moldable thin film (21) and the substrate (20). In other words, if the hermetically isolated region or the sealing device were mounted between the mold body (11) and the molding layer (12), or between the moldable thin film (21) and the substrate (20), the *Chou's* mold would fail to provide parallelism adjustment during molding, thereby destroying the functionality of this device.

In addition, *Burgin et al.* do not teach that the inflatable membrane (112) is used to provide parallelism adjustment between the stamping surface (105) and the contact surface (125), since the mechanical stops (111) are used for

parallelizing the surface (125) and the stamping surface (105) (col. 4, lines 7-11). Therefore, the inflatable membrane (112) of *Burgin et al.* is different in function from the sealing device of *Chou*, or from the resilient film of the present invention. The combination of the inflatable membrane (112) of *Burgin et al.* and *Chou's* sealing device does not render the adjustment mechanism of the present invention obvious.

Moreover, *Chou* and *Burgin et al.* use a fluid driving source to press the mold into a moldable layer or to inflate the elastomeric membrane to bring the surface of the substrate into physical contact with the stamping surface. In some cases, it is necessary to use two or more driving sources to accomplish molding. For example, in *Burgin et al.*, there are two driving sources, one of which is used for raising the mounting plate (138) and the other being used to inflate the elastomeric membrane (112). However, the printing apparatus according to the present invention merely requires one driving source to drive at least one of the imprint unit and the carrier unit. The driving system according to the present invention is simple and therefore the cost is low.

Furthermore, the pre-procedure for molding according to *Chou* is complicated since the mold body (11) and substrate (20) must be assembled together to be disposed within the pressure vessel (31). However, the imprint unit and the carrier unit according to the present invention are separable and therefore it is unnecessary to dispose the imprint unit and the carrier unit within a pressure

vessel beforehand. Hence, the present invention can be applied to mass production.

Since the cited prior art does not teach or suggest Applicants' claimed parallelism adjustment mechanism having a hermetically enclosed resilient film and a predetermined amount of fluid filled therein, it is respectfully submitted that claim 1 and the claims dependent therefrom are patentable over the cited prior art. It is thus requested that these rejections be withdrawn, and that these claims be allowed.

The Examiner has rejected claim 5 in view of *Burgin et al.*, *Chou* and *Gutowski et al.* (USP 5,648,109); claim 9 in view of *Burgin et al.*, *Chou* and *Gorczyca et al.* (USP 6,787,071); and claims 11 and 12 in view of *Burgin et al.*, *Chou*, and *PCT WO 01/42858*. However, none of these secondary references overcome the above-noted deficiencies of *Burgin et al.* and *Chou,* so that these dependent claims are submitted to be patentable over the cited references for at least the same reasons as independent claim 1. It is thus requested that these claims all be allowed, and that these rejections be withdrawn.

It is submitted that this Application is now in condition for allowance. Such action and the passing of this case to issue are requested.

Should the Examiner feel that a conference would help to expedite the prosecution of this application, the Examiner is hereby invited to contact the undersigned counsel to arrange for such an interview.

Should the remittance be accidentally missing or insufficient, the Commissioner is hereby authorized to charge the fee to our Deposit Account No. 18-0002, and advise us accordingly.

Respectfully submitted,

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Date

Robert H. Berdo, Jr. – Registration No. 38,075
RABIN & BERDO, PC – Customer No. 23995
Facsimile: 202-408-0924; 202-408-5297
Telephone: 202-371-8976

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